

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): A semiconductor device comprising:
a data strobe buffering means for generating N number of align control signals based on a data strobe signal and an external clock signal, including a strobe signal divider for receiving the data strobe signal to generate N number of the align control signals based on the data strobe signal sequence;
a receiving block in response to N-1 number of the align control signals for receiving the plurality of input data and outputting intermediate N-bit data in a parallel fashion; and
an outputting block in response to the remaining align control signal for receiving the intermediate N-bit data in the parallel fashion and outputting the intermediate N-bit data in synchronization with the remaining align control signal having an N/2 external clock period to generate the synchronized intermediate N-bit data as the N-bit output data,
wherein the semiconductor device operates to receive a plurality of input data to output the N-bit output data at one clock, N being a positive integer, and N is at least 4.

Claim 2 (Previously Presented): The semiconductor device as recited in claim 1, wherein the data strobe buffering means generates the N number of align control signals, each having a an N/2 external clock period.

Claim 3 (Original): The semiconductor device as recited in claim 2, wherein the receiving block includes N-1 number of latch blocks in response to the N-1 number of the align control signals.

Claim 4 (Canceled)

Claim 5 (Currently Amended): The semiconductor device as recited in claim 1-claim 3, wherein the receiving block includes:
a first latching block for receiving 2-bit data and outputting the 2-bit data in synchronization with a first align control signal to generate the synchronized 2-bit data as a first synchronized data;

a second latching block for receiving the first synchronized data and outputting the first synchronized data in synchronization with a second align control signal to generate the synchronized as some of the intermediate N-bit data; and

a third latching block for receiving 2-bit data and outputting the 2-bit data in synchronization with a third align control signal to generate the synchronized 2-bit data as the other of the intermediate N-bit data.

Claim 6 (Previously Presented): The semiconductor device as recited in claim 5, wherein each of the first to third latching blocks includes at least one latch for synchronizing 1-bit data with one of the align control signals.

Claim 7 (Currently Amended): The semiconductor device as recited in claim 3, wherein the data strobe buffering means includes:

an instruction decoder for generating an initialization pulse for initializing the strobe signal divider in response to the data strobe signal; and

~~a strobe signal divider for receiving the data strobe signal and generating N number of the align control signals based on the strobe signal sequence,~~

~~wherein the strobe signal divider is initialized by the initialization pulse.~~

Claim 8 (Original): The semiconductor device as recited in claim 7, wherein the strobe signal divider includes:

first to forth strobe pulse generators, each for receiving the data strobe signal and generating the align control signals based on the strobe signal sequence; and

an initial setting block for initializing the first to forth strobe pulse generators, wherein the align control signal has the N/2 external clock period.

Claim 9 (Original): The semiconductor device as recited in claim 7, wherein the data strobe buffering means includes a latency shifter coupled between the instruction decoder and the strobe signal divider for delaying the initialization pulse for a predetermined time.

Claim 10 (Previously Presented): The semiconductor device as recited in claim 7, wherein the data strobe buffering means includes a strobe signal buffer for receiving the data strobe signal and outputting the data strobe signal to the strobe signal divider.

Claim 11 (Previously Presented): The semiconductor device as recited in claim 1, wherein the data strobe buffering means generates the N number of align control signals, at least one having an $N/2$ external clock period.

Claim 12 (Original): The semiconductor device as recited in claim 11, wherein the receiving block includes $N-1$ number of latch blocks in response to the $N-1$ number of the align control signals.

Claim 13 (Canceled)

Claim 14 (Previously Presented): The semiconductor device as recited in claim 12, wherein the receiving block includes:

a first latching block for receiving 2-bit data and outputting the 2-bit data in synchronization with a first align control signal to generate the synchronized 2-bit data as a first synchronized data;

a second latching block for receiving the first synchronized data and outputting the first synchronized data in synchronization with a second align control signal to generate the synchronized data as some of the intermediate N -bit data; and

a third latching block for receiving the synchronized 2-bit data outputted from the second latching block and outputting the 2-bit data in synchronization with a third align control signal to generate the synchronized 2-bit data as the other of the intermediate N -bit data.

Claim 15 (Original): The semiconductor device as recited in claim 14, wherein each of the first to third latching blocks includes at least one latch for synchronizing 1-bit data with one of the align control signals.

Claim 16 (Cancelled)

Claim 17 (Currently Amended): The semiconductor device as recited in claim 12, wherein the data strobe buffering means includes:

an instruction decoder for generating an initialization pulse for initializing the strobe signal divider in response to the data strobe signal; ~~and~~
~~a strobe signal divider for receiving the data strobe signal and generating N number of the align control signals based on the strobe signal sequence;~~
~~wherein the strobe signal divider is initialized by the initialization pulse.~~

Claim 18 (Original): The semiconductor device as recited in claim 17, wherein the strobe signal divider includes:

first to forth strobe pulse generators, each for receiving the data strobe signal and generating the align control signals based on the strobe signal sequence; and
an initial setting block for initializing the first to forth strobe pulse generators, wherein the align control signal has the $N/2$ external clock period.

Claim 19 (Original): The semiconductor device as recited in claim 17, wherein the data strobe buffering means includes a latency shifter coupled between the instruction decoder and the strobe signal divider for delaying the initialization pulse for a predetermined time.

Claim 20 (Previously Presented): The semiconductor device as recited in claim 17, wherein the data strobe buffering means includes a strobe signal buffer for receiving the data strobe signal and outputting the data strobe signal to the strobe signal divider.

Claim 21 (Previously Presented): The semiconductor device as recited in claim 1, wherein the outputting block includes N number of latches, each for synchronizing the intermediate N -bit data with the remaining align control signal having the $N/2$ external clock period to generate the synchronized intermediate N -bit data as the N -bit output data.

Claim 22 (Previously Presented): The semiconductor device as recited in claim 1, further comprising a global input-output driver for generating the N-bit output data in response to the strobe enable signal.